The Public Policy Research Lab

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Louisiana's Uninsured Population:

Regional and Parish-level Estimates

Second Quarter 2008 Update

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Overview: This report summarizes regional and parish-level estimates of uninsured children and adults. Estimates are based on data from the 2007 Louisiana Health Insurance Survey, historical data from prior Louisiana Health Insurance Surveys, and the most recent parish-level population, economic, and Medicaid/LaCHIP enrollment data available. In this report, we utilize a *blended* approach that makes use of survey data collected in 2007 and parish-level characteristics to develop estimates of uninsured populations. Specifically, we model uninsured rates as a function of parish-level unemployment, Medicaid/LaCHIP enrollments, the percent of children on free and reduced lunch (as an indicator of poverty), and household income. The blended approach is described more fully in Appendix A, as well as the complete specification of the model.

The results presented in this report reflect the best possible estimates of parish-level uninsured populations during the second quarter of 2008. Before we present the findings, a caveat is in order. The parish-level data used to generate the uninsured estimates are the most recent available. Even so, there is often a lag in the data used to generate the estimates and the period under consideration. For example, the most recent data on population is from July 2007. This measure is an important baseline for the number of uninsured children, but has not been updated (because more recent data are not yet available). Because the measure was used in earlier estimates (from the first quarter 2008), our estimates of uninsured children may appear more stable than they really are, particularly in the New Orleans area.

Table 1: Source of Data and Time Period Covered

Description	**Period**
2007 Louisiana Health Insurance Survey	2007
LA Workforce Commission Unemployment Data	May 2008
LA-DHH Medicaid/LACHIP Enrollment	May 2008
LA-DOE Free & Reduced School Lunch	February 2008
U.S. Census Estimates by Parish	July 2007
IRS Income Data	2006

Regional Estimates: In Tables 2 & 3, we present the regional estimates for uninsured children (u19) and uninsured nonelderly adults (19-64). The numbers for children remain remarkably consistent relative to the first quarter/March 2008 forecast. For example, the statewide uninsured rate for children remains at 5.6%. This consistency may be somewhat misleading as it likely reflects stability in the model more than stability in uninsured rates. We would expect to see larger changes in our fourth quarter when we have more recent data from the Louisiana Department of Education on free and reduced lunches.

The uninsured rate for adults, in contrast, has increased very little from 20.8% to 21.0%. The percent of uninsured adults increases in each of the regions, most notably in the northeast where the percent of uninsured adults increased from 25.1% to 25.6%.

Table 2: Blended Estimates of the Percent and Number of Uninsured Children (Under 19) at the Regional Level

	KIDS (%)			KIDS (Count)		
Region	**2007 Estimate**	**2008Q1 Forecast**	**2008Q2 Forecast**	**2007 Estimate**	**2008Q1 Forecast**	**2008Q2 Forecast**
1: New Orleans	9.0%	9.1%	8.9%	15,845	16,159	14,776
2: Baton Rouge	4.3%	4.7%	4.7%	8,134	8,168	8,233
3: Houma-Thibodeaux	4.1%	4.2%	4.1%	4,635	4,569	4,523
4: Acadiana	5.2%	5.5%	5.4%	8,800	8,755	8,667
5: Southwest	5.8%	5.8%	5.7%	4,384	4,368	4,327
6: Central	4.6%	4.6%	4.6%	3,803	3,787	3,730
7: Northwest	4.6%	4.7%	4.7%	6,777	6,778	6,721
8: Northeast	5.0%	4.9%	4.8%	4,740	4,682	4,540
9: Northshore	4.7%	5.3%	5.2%	7,233	7,226	7,418
Statewide	**5.6%**	**5.6%**	**5.6%**	**64,351**	**64,491**	**62,924**

Table 3: Blended Estimates of the Percent and Number of Uninsured Children (Under 19) at the Regional Level

	ADULTS (%)			ADULTS (Count)		
Region	**2007 Estimate**	**2008Q1 Forecast**	**2008Q2 Forecast**	**2007 Estimate**	**2008Q1 Forecast**	**2008Q2 Forecast**
1: New Orleans	21.2%	21.5%	21.7%	89,962	92,379	96,857
2: Baton Rouge	17.3%	16.9%	17.2%	66,977	67,848	69,067
3: Houma-Thibodeaux	19.6%	19.3%	19.5%	47,042	46,931	47,624
4: Acadiana	19.7%	19.4%	19.7%	66,504	67,216	68,049
5: Southwest	27.8%	27.2%	27.4%	46,702	46,803	47,265
6: Central	21.1%	21.3%	21.7%	37,541	37,812	38,509
7: Northwest	23.8%	25.0%	25.3%	78,641	79,272	80,150
8: Northeast	23.6%	25.1%	25.6%	51,324	51,563	52,677
9: Northshore	20.7%	19.5%	19.7%	61,651	62,326	62,140
Statewide	**20.8%**	**21.0%**	**21.4%**	**546,344**	**552,150**	**562,338**

Parish-Level Estimates: The parish level estimates for children and adults are presented in Tables 4 and 5. For the most part, the results are consistent with the First Quarter/March 2008 quarterly report. However, there is one notable exception. The percent of uninsured children in Orleans and St. Bernard parishes have declined by 0.6 and 2.1 percentage points, respectively during the first two quarters of 2008. This reflects the fact that Medicaid/LaCHIP enrollments are increasing faster than the population. We should note that our population estimates are based on July 2007 data and lag our Medicaid/LaCHIP enrollment data.

Table 4: Blended Estimates of the Percent and Number of Uninsured Children at the Parish-Level

GEOGRAPHY		KIDS (%)			KIDS (count)		
Parish	DHH Region	2007 Estimate	2008Q1 Forecast	2008Q2 Forecast	2007 Estimate	2008Q1 Forecast	2008Q2 Forecast
Jefferson	1	8.90%	8.90%	9.00%	9,742	9,561	9,440
Orleans	1	9.50%	9.60%	8.90%	5,253	5,668	4,543
Plaquemines	1	6.90%	7.00%	7.20%	454	442	429
St. Bernard	1	11.00%	10.7%	8.90%	395	487	354
Ascension	2	6.80%	6.70%	6.4%0	1,894	1,881	1,913
East Baton Rouge	2	4.20%	4.10%	4.20%	4,913	4,925	4,985
East Feliciana	2	2.60%	2.80%	3.00%	134	142	150
Iberville	2	3.10%	3.20%	3.40%	264	274	278
Pointe Coupee	2	7.90%	8.30%	7.80%	465	483	440
West Baton Rouge	2	5.90%	5.90%	5.90%	355	357	362
West Feliciana	2	4.00%	4.00%	4.00%	109	106	103
Assumption	3	7.80%	7.50%	6.80%	476	447	398
Lafourche	3	3.30%	3.30%	3.30%	799	795	798
St. Charles	3	3.10%	3.10%	3.20%	457	450	463
St. James	3	7.40%	7.30%	6.90%	452	443	406
St. John The Baptist	3	8.40%	8.20%	8.10%	1210	1158	1,168
St. Mary	3	4.60%	4.60%	4.40%	677	661	628
Terrebonne	3	1.80%	2.00%	2.20%	565	614	662
Acadia	4	6.90%	6.80%	6.60%	1218	1181	1,141
Evangeline	4	5.90%	6.00%	5.90%	615	618	610
Iberia	4	3.00%	3.10%	3.20%	655	664	679
Lafayette	4	5.10%	5.00%	5.10%	2804	2815	2,843
St. Landry	4	5.70%	5.70%	5.70%	1502	1498	1,488
St. Martin	4	7.00%	7.00%	6.70%	990	992	956
Vermilion	4	6.70%	6.60%	6.40%	1,016	988	949
Allen	5	4.20%	4.40%	4.50%	261	277	277
Beauregard	5	5.70%	5.80%	5.80%	521	521	529

GEOGRAPHY		KIDS (%)			KIDS (count)		
Parish	DHH Region	2007 Estimate	2008Q1 Forecast	2008Q2 Forecast	2007 Estimate	2008Q1 Forecast	2008Q2 Forecast
Calcasieu	5	5.70%	5.70%	5.70%	2845	2832	2,822
Cameron	5	7.80%	7.70%	7.40%	155	144	122
Jefferson Davis	5	6.80%	6.80%	6.60%	602	594	577
Avoyelles	6	3.80%	3.80%	4.00%	427	423	441
Catahoula	6	3.60%	3.70%	3.70%	95	98	96
Concordia	6	5.90%	5.70%	5.30%	301	286	261
Grant	6	2.30%	2.60%	2.90%	121	137	152
La Salle	6	1.90%	2.10%	2.30%	66	73	80
Rapides	6	5.00%	4.90%	4.90%	1744	1726	1,711
Vernon	6	5.20%	5.20%	5.20%	832	840	802
Winn	6	5.70%	5.50%	5.10%	216	203	186
Bienville	7	4.50%	4.60%	4.60%	174	175	173
Bossier	7	3.30%	3.30%	3.40%	1002	1021	1,062
Caddo	7	5.10%	5.10%	5.00%	3,488	3,442	3,406
Claiborne	7	6.50%	6.70%	6.20%	249	257	226
De Soto	7	6.40%	6.40%	6.10%	454	450	432
Natchitoches	7	6.20%	6.20%	6.20%	687	705	692
Red River	7	3.20%	3.20%	3.40%	85	85	89
Sabine	7	5.50%	5.50%	5.40%	346	341	331
Webster	7	2.90%	3.00%	3.10%	292	303	309
Caldwell	8	4.30%	4.20%	4.30%	110	105	105
East Carroll	8	8.20%	7.90%	7.30%	219	202	173
Franklin	8	1.50%	1.60%	1.70%	81	85	88
Jackson	8	2.90%	3.10%	3.30%	108	117	124
Lincoln	8	5.50%	5.60%	5.50%	633	651	642
Madison	8	7.50%	7.20%	6.70%	286	267	241
Morehouse	8	6.60%	6.50%	6.20%	526	499	463
Ouachita	8	4.60%	4.60%	4.50%	1962	1943	1,919

GEOGRAPHY		KIDS (%)			KIDS (count)		
Parish	DHH Region	2007 Estimate	2008Q1 Forecast	2008Q2 Forecast	2007 Estimate	2008Q1 Forecast	2008Q2 Forecast
Richland	8	1.60%	1.70%	1.90%	87	92	104
Tensas	8	4.70%	4.90%	4.90%	75	74	71
Union	8	8.00%	8.00%	7.60%	463	462	442
West Carroll	8	6.70%	6.70%	6.10%	190	186	168
Livingston	9	3.00%	3.10%	3.20%	947	970	1,041
St. Helena	9	8.50%	8.40%	8.40%	241	234	231
St. Tammany	9	4.20%	4.20%	4.30%	2,550	2,487	2,609
Tangipahoa	9	7.10%	7.10%	7.10%	2222	2266	2,307
Washington	9	10.70%	10.7%	10.20%	1272	1267	1,229

Table 5: Blended Estimates of the Percent and Number of Uninsured Adults at the Parish-Level

GEOGRAPHY		ADULTS (%)			ADULTS (Count)		
Parish	DHH Region	2007 Estimate	2008Q1 Forecast	2008Q2 Forecast	2007 Estimate	2008Q1 Forecast	2008Q2 Forecast
Jefferson	1	21.1%	21.2%	21.5%	55,640	54,934	56,052
Orleans	1	21.1%	21.3%	21.4%	28,660	30,986	33,709
Plaquemines	1	19.5%	19.9%	20.5%	2,612	2,543	2,706
St. Bernard	1	30.7%	30.9%	31.1%	3,050	3,916	4,390
Ascension	2	15.0%	15.2%	15.3%	9,257	9,532	9,411
East Baton Rouge	2	16.7%	16.8%	17.0%	44,242	44,581	45,464
East Feliciana	2	16.9%	17.4%	18.1%	2,244	2,301	2,417
Iberville	2	20.4%	21.2%	21.8%	4,225	4,318	4,491
Pointe Coupee	2	17.5%	18.4%	19.1%	2,373	2,461	2,562
West Baton Rouge	2	19.5%	19.7%	20.0%	2,749	2,806	2,834
West Feliciana	2	16.4%	16.6%	16.8%	1,887	1,849	1,888
Assumption	3	22.1%	22.3%	22.3%	3,211	3,182	3,200
Lafourche	3	16.3%	16.5%	16.9%	9,435	9,473	9,719
St. Charles	3	14.0%	14.2%	14.5%	4,610	4,614	4,721
St. James	3	23.9%	24.3%	24.3%	3,099	3,125	3,160
St. John The Baptist	3	18.8%	19.1%	19.6%	5,642	5,623	5,720
St. Mary	3	20.3%	20.6%	20.8%	6,215	6,232	6,351
Terrebonne	3	22.2%	22.2%	22.2%	14,829	14,681	14,753
Acadia	4	22.4%	22.5%	225%	7,955	7,904	7,892
Evangeline	4	20.9%	21.3%	21.8%	4,409	4,482	4,600
Iberia	4	20.4%	20.7%	21.0%	9,142	9,207	9,341
Lafayette	4	16.6%	16.7%	16.9%	21,052	21,348	21,645
St. Landry	4	20.4%	20.7%	21.2%	10,813	10,960	11,153
St. Martin	4	22.0%	22.3%	22.5%	6,996	7,148	7,169
Vermilion	4	18.3%	18.5%	18.8%	6,137	6,168	6,248
Allen	5	27.6%	28.3%	28.9%	4,445	4,568	4,679
Beauregard	5	25.7%	26.1%	26.4%	5,573	5,591	5,602

GEOGRAPHY		ADULTS (%)			ADULTS (Count)		
Parish	DHH Region	2007 Estimate	2008Q1 Forecast	2008Q2 Forecast	2007 Estimate	2008Q1 Forecast	2008Q2 Forecast
Calcasieu	5	27.1%	27.2%	27.3%	30,279	30,303	30,543
Cameron	5	28.5%	28.4%	28.2%	1,387	1,318	1,377
Jefferson Davis	5	27.5%	27.7%	28.0%	5,017	5,022	5,063
Avoyelles	6	24.4%	24.6%	25.2%	6,314	6,305	6,423
Catahoula	6	29.4%	29.3%	29.0%	1,875	1,851	1,841
Concordia	6	22.9%	23.3%	23.8%	2,608	2,597	2,645
Grant	6	25.8%	26.0%	25.9%	3,133	3,134	3,091
La Salle	6	17.4%	17.8%	18.3%	1,471	1,500	1,537
Rapides	6	18.6%	18.8%	19.3%	14,492	14,682	14,980
Vernon	6	19.7%	20.0%	20.4%	5,155	5,295	5,523
Winn	6	25.4%	25.4%	25.5%	2,492	2,449	2,469
Bienville	7	28.1%	28.5%	28.8%	2,435	2,424	2,458
Bossier	7	18.3%	18.5%	19.0%	11,884	12,213	12,361
Caddo	7	25.2%	25.4%	25.6%	38,067	38,173	38,551
Claiborne	7	29.3%	29.8%	30.1%	2,832	2,894	2,999
De Soto	7	28.6%	29.0%	29.2%	4,528	4,570	4,576
Natchitoches	7	24.8%	25.3%	26.3%	5,647	5,872	6,147
Red River	7	32.5%	32.5%	32.8%	1,761	1,715	1,723
Sabine	7	31.5%	31.2%	30.9%	4,354	4,274	4,259
Webster	7	29.4%	29.7%	29.5%	7,132	7,138	7,077
Caldwell	8	31.5%	31.1%	30.9%	2,069	1,985	1,968
East Carroll	8	35.6%	35.8%	35.8%	1,752	1,681	1,729
Franklin	8	28.2%	28.7%	29.0%	3,289	3,277	3,335
Jackson	8	21.9%	22.5%	23.1%	1,959	2,006	2,050
Lincoln	8	21.1%	21.6%	22.5%	5,349	5,572	5,829
Madison	8	30.6%	31.2%	31.7%	2,166	2,122	2,176
Morehouse	8	25.9%	26.6%	27.3%	4,479	4,447	4,578
Ouachita	8	23.3%	23.4%	23.8%	20,677	20,810	21,133
Richland	8	23.4%	24.0%	25.3%	2,832	2,892	3,059

GEOGRAPHY		ADULTS (%)			ADULTS (Count)		
Parish	DHH Region	2007 Estimate	2008Q1 Forecast	2008Q2 Forecast	2007 Estimate	2008Q1 Forecast	2008Q2 Forecast
Tensas	8	34.4%	34.6%	34.6%	1,260	1,214	1,225
Union	8	24.6%	25.3%	25.9%	3,327	3,393	3,450
West Carroll	8	31.1%	31.5%	31.4%	2,165	2,164	2,146
Livingston	9	18.6%	18.8%	19.1%	13,678	14,028	13,922
St. Helena	9	29.4%	29.5%	29.7%	1,921	1,900	1,920
St. Tammany	9	13.4%	13.5%	13.8%	19,295	19,108	19,128
Tangipahoa	9	25.2%	25.5%	25.7%	17,584	18,099	18,070
Washington	9	34.5%	34.4%	34.0%	9,173	9,191	9,047

Appendix A
Technical Discussion of the Methodology

The purpose of this section is to describe the methodology used to produce the parish-level estimates. Discussion on small area estimation, sample size, and parish and regional level estimates are included in this section. Small area estimation allows us to obtain estimates of the percent of uninsured citizens on parish-level characteristics. The estimates are based on data collected in the 2007 Louisiana Health Insurance Survey and parish-level data on Medicare enrollments, population characteristics, and economic indicators.

Small Area Estimation
Various methods *of small area estimation* exist, and while each provides insight into the study of health policy, different techniques offer different strengths and weaknesses. The various methods include:

- Direct survey estimation;
- Synthetic estimation; and
- Blended estimation.

The simplest method is *direct survey estimation*, which uses the survey to estimate the proportion of uninsured in each parish. The synthetic estimation method consists of constructing estimates of parish health insurance coverage rates by building a statistical model to predict parish-level insurance coverage rates. In essence, the statistical model takes advantage of the fact that we would expect parishes that are similar in terms of other characteristics (income, Medicaid enrollment, etc.) to have similar insurance coverage rates. Finally, this blended estimation option, called *information borrowing*, allows us to blend the survey estimates with synthetic estimates. The blended estimates place greater weight on the direct survey estimates in parishes where a large sample exists and rely more heavily on synthetic estimates in parishes where the sample size is small. We utilize the blended estimates to take advantage of the large survey observations including in the 2007 Louisiana Health Insurance Survey and to update our expectations based on parish-level characteristics such as unemployment.

Construction of Synthetic Estimates
Our methodology consists of constructing synthetic estimates of parish uninsurance rates similar to:

$$\hat{y}_i^{Synthetic} = \hat{\beta}_0 + \hat{\beta}_1 x_{1i} + \hat{\beta}_2 x_{2i} + \ldots + \hat{\beta}_k x_{ki}$$

Intuitively, the methodology should use the survey estimate y_i^{Direct} when the survey estimate is accurate and $y_i^{Synthetic}$ when the survey standard error is large and y_i^{Direct} is inaccurate. We accomplish this goal by creating a blended estimate:

$$y_i^{Blended} = w_1 y_i^{Direct} + w_2 y_i^{Synthetic}$$

where $w_1 = 1 - \dfrac{SE(Y^{Direct})}{(SE(Y^{Direct}) + SE(Y^{Synthetic}))}$ and

$$w_2 = \frac{SE(Y^{Direct})}{(SE(Y^{Direct}) + SE(Y^{Synthetic}))}.$$ [1]

Equations A.1 and A.2 below provide OLS estimates of parish uninsurance rates for children under 19 and adults 19-64 respectively. For the children's equation, the independent variable is equal to the child's probability of being uninsured. For many children, this is simply zero or one depending on the survey response. But, for

[1] Note that this weighting scheme differs from the pure empirical Bayes used in the 2003 LHIS and tends to place more weight on direct estimates for our sample. We thank Gestur Davidson of SHADAC for suggesting the new weights.

children who are eligible for Medicaid, the bias correction model was used to assign a probability of being on Medicaid based on the individual and family characteristics. The explanatory variables are the percent of working age adults in the house who are unemployed (*PCTUNEMP*), an indicator equal to one if the child lives in a family below 185% of the federal poverty line (*LT185FPL*), household income (*HHINC*), an indicator equal to one if the child is black (*BLACK*), an indicator equal to one if the child is female (*FEMALE*), an indicator equal to one if the child is on Medicaid or LACHIP (MEDICAID), three dummy variables for age (A2-A4), and dummy variables for DHH region (D2-D8). Note that we constrain the coefficients of *LT185FPL* and MEDICAID to sum to zero.

Children under 19:

$$\begin{aligned}\hat{y}_i^{Synthetic} &= .0734 + .023PCTUNEMP + .107LT185FPL + 1.17\text{e-}08HHINC - .009BLACK \\ &- .006FEMALE - .107MEDICAID + .006A2 + .005A3 + .010A4 \\ &- .040D2 - .042D3 - .041D4 - .0204D5 - .044D6 - .037D7 - .032D8 - .034D9\end{aligned} \quad \text{(A.1)}$$

The adults equation deletes the Medicaid indicator, but is otherwise similar with the only exception being that there are more age groups defined to cover the broader range 19-64.

Adults 19-64:

$$\begin{aligned}\hat{y}_i^{Synthetic} &= .162 + .214PCTUNEMP + .220LT185FPL - 6.26\text{e-}08HHINC + .035BLACK \\ &- .014FEMALE + .005A2 - .036A3 - .058A4 - .103A5 \\ &- .041D2 - .004D3 - .003D4 + .051D5 + .030D6 + .030D7 + .046D8 + .032D9\end{aligned} \quad \text{(A.2)}$$

Overall results appear as expected. Rates of uninsurance are higher among poorer individuals and among the unemployed.

Given the sample sizes, we have more confidence in our regional estimates and scaled the parish-level estimates so that the regional totals match those from the full report. This process of scaling the parish estimates to equal regional estimates is called raking the estimates and ensures consistency across reports.